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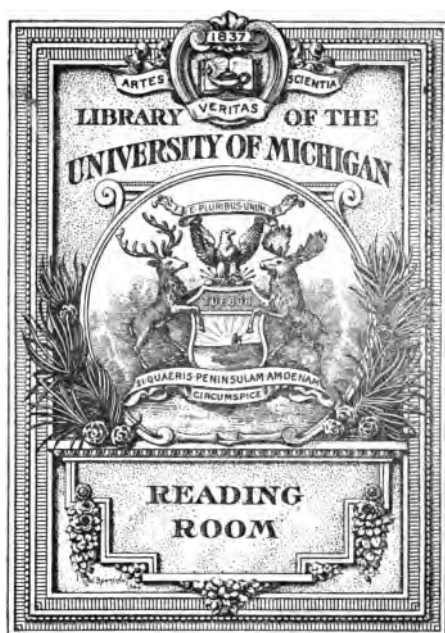
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# BIBLIOGRAPHY

OF

# ASTRONOMY:

FOR THE YEAR

1887

BY

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# BIBLIOGRAPHY OF ASTRONOMY: 1887.

BY WILLIAM C. WINLOCK.

The following subject-index of astronomy for 1887 was originally compiled as an appendix to a general review of the progress of astronomy during that year, and though not exhaustive, it may, perhaps, be found a useful reference list. Important contributions to astronomy published during 1887 in scientific journals and transactions of societies, as well as all more elaborate publications that have come to the compiler's notice, have been included—a few titles being taken from reviews, or book-catalogues. Observations of asteroids and comets, except those of the comets of 1887, have generally been omitted.

The prices quoted are usually from Friedländer's *Naturae Novitates*, in German "marks" (1 Mark = 100 Pfennig = 1 franc 25 centimes = 25 cents, nearly.)

The abbreviated titles will probably be readily understood by those familiar with scientific periodicals without special explanation, beyond the following list of less obvious contractions.

Abstr. = Abstract.	Lfg. = Lieferung.	pt. = part.
Am. = American.	M. = marks.	r. = reale.
Bd. = Band.	n. d. = no date.	Rev. = review.
d. = die, der, del, etc.	n. p. = no page.	s. = series.
ed. = edition.	n. F. = neue Folge.	sc. = science, scien-
Hft. = Heft.	n. s. = new series.	tific.
hrsg. = herausgegeben.	not. = notices.	sh. = shilling,
il. = illustrated.	obsns. = observations.	sup. = supplement.
j., jour. = journal.	Obsrv. = Observatory.	v., vol. = volume.
k. k. = kaiserlich könig-	p. = page.	
lich.	pl. = plates.	

In the references to journal articles the volume and page are simply separated by a colon, thus: "Bull. astron., 4 : 94-98," indicates volume 4, pages 94 to 98.

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**Colored stars.**

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**Colored stars**—*Continued.*

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MONK (W. H. S.) Colors of the stars and solar heat. Obsry., 10: 164.

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**Comet Olbers** = Comet 1887 V (*f*).

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*Also*: Astron. Nachr., 117: 279. *Also*: Sc. Amer., 47: 181, 192. *Also*:  
Sid. mess., 6: 289.

**Comet Olbers** (Elements of).

EGBERT (H. V.) [From obsns. 1887, Aug. 26, 28, 30.] Astron. jour., 7: 128.  
*Also*: Sc. obsr. circ., 79. *See, also*, Sid. mess., 6: 294.

—— [Correcting Ginzels elements by obsns. 1887, Aug. 27 to Sept. 23.] Astron. jour., 7: 135.

FRANZ (J.) [From obsns. 1887, Aug. 27, 28, 29.] Astron. Nachr., 117: 295.

GINZEL (F. K.) [Elements corrected by obsns. 1887, Aug. 27, Sept. 6, 14.] Astron. Nachr., 117: 390.

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KRÜGER (A.) [Ginzels elements corrected by obsns. 1887, Aug. 27.] Astron. Nachr., 117: 309.

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**Comet Olbers** (Observations of position of).

Albany, Aug. 26–30; Astron. journ., 7: 128. Sept. 23; *Ibid.*, 136. Sept. 15, Nov. 1; *Ibid.*, 152.

Algiers, Aug. 29, 31, Sept. 2; Astron. Nachr., 117: 325. Aug. 29, 31; Compt. Rend., 105: 480. Sept. 10, 12, 13, 14, 16; *Ibid.*, 511. Sept. 17, 19, 21, 22; Bull. astron., 4: 466.

Besançon, Aug. 29, 30, Sept. 1; Astron. Nachr., 117: 341. *Also*: Compt. Rend., 105: 431. Sept. 14–17, 21, 22, 26, 30, Oct. 1; Compt. Rend., 105: 609.

Bordeaux, Sept. 8, 9, 10; Compt. Rend., 105: 456. Sept. 8, 9, 10, 15, 18, 19, 21, 23, 24, 25; *Ibid.*, 1001. *Also*: Astron. Nachr., 118: 109.

Bothkamp, Sept. 18, 20, 21, 23, 24; Astron. Nachr., 117: 387. Oct. 21, 26; *Ibid.*, 118: 105.

Geneva, Aug. 29; Astron. Nachr., 117: 293. Sept. 6; *Ibid.*, 307. Oct. 1, 17, 25, 27, Nov. 4; *Ibid.*, 118: 109.

Hamburg, Sept. 20; Astron. Nachr., 117: 355. Sept. 23, 24; *Ibid.*, 387.

**Comet Olbers** (Observations of position of)—*Continued.*

Kiel, Sept. 14; *Astron. Nachr.*, 117: 327. Sept. 15, 18; *Ibid.*, 341. Sept. 20; *Ibid.*, 355.

Königsberg, Aug. 27, 28, 29; *Astron. Nachr.*, 117: 295. Aug. 27, 28, 29, Sept. 10, 12; *Ibid.*, 341. Sept. 21, 27; *Ibid.*, 387. Oct. 8, 12, 14; *Ibid.*, 118: 42. Oct. 26, 27, Nov. 11; *Ibid.*, 118: 94.

Kremsmünster, Aug. 28; *Astron. Nachr.*, 117: 293. Aug. 28, 30, Sept. 6, 10, 17; *Ibid.*, 118: 107.

Lyons, Aug. 30; *Compt. Rend.*, 105: 432. Sept. 9, 10; *Ibid.*, 487. Sept. 13, 21, 22; *Ibid.*, 512.

Marseilles, Aug. 27, 29; *Bull. astron.*, 4: 462. Aug. 29, 30, 31, Sept. 13, 15, 16, 18, 20, 22, 23, 26; *Ibid.*, 464.

Milan, Aug. 30, 31; *Astron. Nachr.*, 117: 307.

Nashville, Aug. 27, 28; *Astron. jour.*, 7: 127. *Also*: *Astron. Nachr.*, 117: 327, 391.

Nice, Aug. 29–Sept. 2; *Compt. Rend.*, 105: 456. *Also*: *Bull. astron.*, 4: 467. Sept. 5, 6; *Bull. astron.*, 4: 467.

Padua, Sept. 13, 14, 15, 24; *Astron. Nachr.*, 117: 390.

Plonsk, Sept. 6; *Ibid.*, 327, 391.

Pulkowa, Sept. 25, Oct. 10, 15, 22, Nov. 13, 15; *Ibid.*, 118: 109

Rome, Aug. 27; *Astron. Nachr.*, 117: 293.

Strassburg, Aug. 27; *Ibid.*, 293. Aug. 27, Sept. 14; *Ibid.*, 341.

Turin, Aug. 29; *Ibid.*, 293. Aug. 29, 31; *Ibid.*, 327. Sept. 10, 13, 15, 16, 17, 20; *Ibid.*, 118: 75.

Vienna, Aug. 27; *Ibid.*, 117: 294. Oct. 21; *Ibid.*, 118: 42.

Washington, Aug. 29, 30, 31, Sept. 16, 19; *Astron. jour.*, 7: 134.

**Comet Olbers** (Orbit of). *See, also*, Comet Olbers (Elements of).

KRÜGER (A.) Wiederkehr des Olbers'schen Cometen. *Astron. Nachr.*, 117: 310.

SEARLE (G. M.) Recent approach of the Olbers comet to Mars. *Astron. jour.*, 7: 134.

**Comet Temple.** *See* Comets and Meteors.**Comet Winnecke.**

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GINZEL (F. K.) [Apparition of two historical comets, 890, May 23, and 1075, July–Aug.] *Astron. Nachr.*, 118: 47.

**Comet 1457 I.**

SCHULHOF (L.) Orbites des comètes 1457 I et 1818 I. *Bull. astron.*, 4: 51–54.

**Comet 1672.**

BERBERICH (A.) Der Comet des Jahres 1672. *Astron. Nachr.*, 118: 50–72.

**Comet 1680.**

LYNN (W. T.) Comet of 1680 and its supposed previous appearances. Obsrv., 10: 318.

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**Comet 1818 I.** *See Comet 1457 I.***Comet 1825 IV.**

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**Comet 1846 VI.**

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**Comet 1848 I.**

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SVEDSTRUP (A.) Definitive Bahnbestimmung des Cometen 1863 IV. Astron. Nachr., 117: 222-242.

**Comet 1865 I.**

KÖRBER (F.) Über den Cometen 1865 I. 58 p. 8vo. Breslau, 1887. (M. 1.50.)

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VON REBEUR-PASCHWITZ (E.) Über die Bahn des Cometen 1882 I. Astron. Nachr., 117: 281-287. *Rev.*: Bull. astron., 4: 448.

*Rev.*: Bull. astron., 4: 448.

**Comet 1883 II.**

BRYANT (R.) [Elliptic elements from normals 1884, Jan. 19, Jan. 25, Feb. 2.] Month. not., 47: 434.

TENNANT (J. F.) [Note on the orbit.] *Ibid.*, 520.

**Comet 1884 III.**

BERBERICH (A.) Elemente . . . aus den Strassburger Beobachtungen . . . Astron. Nachr., 117: 251.

THRAEN (A.) Definitive Bahnbestimmung des Cometen 1884 III, Wolf. Astron. Nachr., 117: 65-93.

**Comet 1886 I.**

MORRISON (J.) [Hyperbolic elements from obsns. 1885, Dec. 7, to 1886, June 6.] *Month. not.*, 47: 487.

**Comet 1886 III.**

CELORIA (G.) [Elements from normals 1886, May 4, 10, 22.] *Astron. Nachr.*, 117: 9.

**Comet 1886 V.**

WILSON (H. C.) The comets of De Vico, 1844 I, and Finlay, 1886 V. *il. Sid. mess.*, 6: 121-126.

**Comet 1886 VII.**

BOSS (L.) Orbit of the periodic comet 1886, *e*, Finlay. *Astron. jour.*, 7: 23, 43.

*See, also, Astron. jour.*, 7: 7.

FINLAY (W. H.) [Elements from normals 1886, Sept. 28, Dec. 15, and observations Oct. 21, Nov. 13, Dec. 27. *Month. not.*, 47: 302.

HOLETSCHEK (J.) [Elements from obsns. 1886, Sept. 26, Oct. 14, Oct. 29, Nov. 28.] *Astron. Nachr.*, 116: 47.

KRÜGER (A.) [Elements from obsns. to 1887, Feb. 23.] *Ibid.*, 835.

*See, also, Astron. Nachr.*, 116: 77, 127.

MONCK (W. H. S.) [Resemblance of elements to those of comet of 1585.] *Sid. mess.*, 6: 222.

OPPENHEIM (H.) Elements from obsns. 1886, Oct. 1, Nov. 1, 7, 27.] *Astron. Nachr.*, 116: 45.

SEARLE (G. M.) [Elements from obsns. 1886, Sept. 26, Oct. 16, Nov. 4.] *Astron. jour.*, 7: 15.

— [Elements from obsns. 1886, Sept. 26, Nov. 4, Dec. 14.] *Ibid.*, 52.

**Comet 1886 VIII = Comet 1887 c.**

Discovered by Barnard at Nashville, 1887, Jan. 23. *Astron. jour.*, 7: 56. *Also: Astron. Nachr.*, 116, 143. *Also: Sid. mess.*, 6: 114.

**Comet 1886 VIII (Elements of).**

CHARLOIS (A.) [Elements from obsns. 1887, Jan. 26, 29, Feb. 1.] *Bull. astron.*, 4: 58.

EGBERT (H. V.) [Elements from obsns. 1887, Jan. 23, 24, 26.] *Astron. jour.*, 7: 64.

— [Elements from obsns. 1887, Jan. 23, 26, 30.] *Ibid.*, 71.

— [Elements from obsns. 1887, Jan. 24, Feb. 18, Mar. 20.] *Ibid.*, 87.

OPPENHEIM (H.) [Elements from obsns. 1887, Jan. 24, 29, Feb. 3.] *Astron. Nachr.*, 116: 175. *Also: Obsrv.*, 10: 144.

WEISS (E.) [Elements from obsns. 1887, Jan. 24, 26, 29.] *Astron. Nachr.*, 116: 159.

— [Elements from two normals 1887, Jan. 24-30, and observation Feb. 3.] *Ibid.*, 191.

**Comet 1886 IX.**

ALLEN (W. H.) [Elements from normals 1886, Oct. 8, Nov. 3, Dec. 2, Dec. 10.] *Astron. jour.*, 7: 55.

**Comet 1886 IX—Continued.**

- BREDICHIN (T.) [Discussion of observations of the tail.] 7 p., 1 pl. 8vo. Moscou, 1887.
- MORRISON (J.) [Elements from obsns. 1886, Oct. 7–Dec. 2.] *Month. not.*, 47: 438.
- SVEDSTRUP (A.) [Elements from normals 1886, Oct. 8, 28, Nov. 18.] *Astron. Nachr.*, 116: 15.
- WENDELL (O. C.) [Elements from obsns. 1886, Oct. 7, Nov. 6, Dec. 10.] *Ibid.*, 117: 59.

**Comet 1887 I = 1887 a.**

- Discovered by Thome at Cordoba, 1887, Jan. 18. *Astron. jour.*, 7: 55. *Also:* *Astron. Nachr.*, 116: 143. *Also:* *Obsrv.*, 10: 112.
- See, also* (independent discovery near Cape Town), *Month. not.*, 47: 303.

**Comet 1887 I (Elements and Orbit of).**

- CHANDLER (S. C.) jr. [Elements from obsns. 1887, Jan. 20–29.] *Astron. jour.*, 7: 93.
- [Elements from Cape and Adelaide obsns. combined into normals, 1887, Jan. 22, 25, 27.] *Ibid.*, 100.
- FINLAY (W. H.) [Elements from obsns. 1887, Jan. 22, 25, 28.] *Month. not.*, 47: 304.
- OPPENHEIM (H.) Über die Bahn des grossen Südcometen 1887 I. *Astron. Nachr.*, 117: 18.
- R. (A. W.) The present southern comet. *Nature*, 35: 438.

**Comet 1887 I (Observations of position of). 1887.**

- Adelaide, Jan. 21, 22, 25, 26, 27; *Month. not.*, 47: 305.
- Cape of Good Hope, Jan. 22–25, 27, 28; *Ibid.*, 303.
- Cordoba, Jan. 21, 22, 24, 25, 27; *Astron. jour.*, 7: 91. *Also:* *Astron. Nachr.*, 117: 259.
- MOLONY (E. J.) [Observations with sextant Jan. 21, 22, 25.] *Month. not.*, 47: 432.

**Comet 1887 I (Physical appearance of).**

- BIGGS (A. B.) [General description.] *Eng. mec.*, 45: 174.
- F[LAMMARION] (C.) La grande comète australe de 1887. *il. L'Astron.*, 6: 201–203.
- [Rio Janeiro observations, with sketch.] *Rev. d. obsrv.*, 2: 17.
- TEBBUTT (J.) [Description of a large southern comet.] *Obsrv.*, 10: 166.
- THOME (J. M.) O grande cometa austral. *Rev. d. obsrv.*, 2: 35.

**Comet 1887 II = Comet 1887 b.**

- Discovered by Brooks at Phelps, N. Y., 1887, Jan. 22. *Astron. jour.*, 7: 55.
- Also:* *Astron. Nachr.*, 116: 143. *Also:* *Sid. mess.*, 6: 113.

**Comet 1887 II (Elements of).**

- BERBERICH (A.) [From obsns. 1887, Jan. 25, 26, 28.] *Astron. Nachr.*, 116: 159.
- BOSS (L.) [From obsns. 1887, Jan. 24, 26, 29.] *Ibid.*, 116: 160.

**Comet 1887 II** (Elements of)—*Continued.*

- BOSS (L.) [From obsns. 1887, Jan. 24, 29, Feb. 9.] *Astron. jour.*, 7: 63.  
 ——— [From obsns. 1887, Jan. 24, Feb. 15 (4 obsns.), Mar. 12.] *Ibid.*, 85.  
 OPPENHEIM (H.) [From obsns. 1887, Jan. 25, 27, 29.] *Astron. Nachr.*, 116: 174. *Also: Obsrv.*, 10: 143.  
 ——— [From obsns. 1887, Jan. 25, 27, 29, Feb. 11.] *Astron. Nachr.*, 116: 221.  
 ——— [From obsns. 1887, Jan. 25, Feb. 11, Mar. 11, 28.] *Ibid.*, 317.  
 SPITALER (R.) [From obsns. 1887, Jan. 25, 27, 29.] *Ibid.*, 173.  
 ——— [From obsns. 1887, Jan. 25, 26, Feb. 12.] *Ibid.*, 206.  
 ——— [From normals 1887, Jan. 24, Feb. 11, and an observation Feb. 25.] *Ibid.*, 253.

**Comet 1887 II** (Observations of position of). 1887.

- Albany, Jan. 24, 26, 27, 29, Feb. 9; *Astron. jour.*, 7: 56, 61. Mar. 12; *Ibid.*, 85.  
 Algiers, Jan. 27, 28; *Compt. Rend.*, 104: 348. Jan. 27, 28, Feb. 19, 21, 23, 26, Mar. 14; *Bull. astron.*, 4: 136. Mar. 18, 21–25, Apr. 13, 14; *Ibid.*, 423.  
 Berlin, Feb. 11; *Astron. Nachr.*, 116: 189.  
 Besançon, Feb. 24, 26, 28, Mar. 1, 2, 18, 29, Apr. 10, 18, 20; *Compt. Rend.*, 105: 788.  
 Bethlehem, Feb. 9, 18, 19; *Astron. jour.*, 7: 80.  
 Bordeaux, Jan. 29; *Astron. Nachr.*, 116: 157. *Also: Compt. Rend.*, 104: 277. Jan. 30, Feb. 4, 5, 7, 9, 10, 11; *Compt. Rend.*, 104: 417. Jan. 29, 30, Feb. 4, 5, 7, 9, 10, 11, 13, 15, 16, 17, 24, 26, 27, Mar. 2, 3, 4, 7, 16, 17, 18, 25, 28, 30; *Astron. Nachr.*, 117: 99.  
 Bothkamp, Mar. 19, 20; *Astron. Nachr.*, 118: 105.  
 Cambridge (Harv. coll. obsrv.), Jan. 24, 27; *Ibid.*, 116: 191.  
 Copenhagen, Feb. 13, Mar. 16; *Ibid.*, 118: 73.  
 Dresden, Feb. 15; *Astron. Nachr.*, 116: 208. Feb. 19; *Ibid.*, 249. Mar. 11; *Ibid.*, 267. Mar. 24; *Ibid.*, 317, 327.  
 Geneva, Feb. 10, 11, 12, 14, 17, 18, 21–24, 26, 28, Mar. 18, 29–31; *Astron. Nachr.*, 116: 333. Apr. 18, 20; *Ibid.*, 117: 55.  
 Göttingen, Feb. 15; *Astron. Nachr.*, 116: 203. Feb. 14, 17, 24; *Ibid.*, 249. Mar. 11, 15; *Ibid.*, 116: 267. Feb. 14–18, 24, 28, Mar. 1, 11, 15; *Ibid.*, 117: 149.  
 Greenwich, Feb. 27, 28; *Month. not.*, 47: 275. Mar. 13, 16, 18, 23, 24, 27; *Ibid.*, 392.  
 Hamburg, Feb. 13, 15; *Astron. Nachr.*, 116: 203.  
 Kiel, Jan. 27; *Ibid.*, 157. Feb. 10, 11; *Ibid.*, 189. Feb. 15; *Ibid.*, 203.  
 Kremsmünster, Jan. 24–30; *Astron. Nachr.*, 117: 149. Feb. 12, 14, 15–18, 24, Mar. 1, 2, 4, 21; *Ibid.*, 118: 105.  
 Milan, Jan. 27; *Ibid.*, 116: 173.  
 Nashville, Jan. 23; *Astron. jour.*, 7: 63. *Also: Astron. Nachr.*, 116: 203.  
 Nice, Jan. 27–29; *Bull. astron.*, 4: 135.  
 Orwell Park, Feb. 12, 13, 15, 16, 17, 21, 24–28, Mar. 1, 2, 6, 10, 11, 12, 14, 16, 18, 23, 25, 27, 28, 30, Apr. 10, 11, 15, 16, 17, 20, 23; *Month. not.*, 48: 58.

**Comet 1887 II** (Observations of position of). 1887—*Continued*.

- Padua, Jan. 27–30; *Astron. Nachr.*, 116: 171.  
 Palermo, Jan. 29–31; *Ibid.*, 219. Feb. 15, 24; *Ibid.*, 265.  
 Paris, Jan. 27; *Astron. Nachr.*, 116: 173. Jan. 27, 28, 29; *Compt. Rend.*, 104: 276.  
 Plonsk, Feb. 11, 14, 17, 20, 25; *Astron. Nachr.*, 117: 305.  
 Strassburg, Jan. 25–28; *Ibid.*, 116: 143, 157. Feb. 11; *Ibid.*, 203.  
 Toulouse, Jan. 27–31, Feb. 4; *Compt. Rend.*, 104: 487.  
 Vienna, Jan. 28, 29; *Astron. Nachr.*, 116: 173. Feb. 12; *Ibid.*, 205. Feb. 18; *Ibid.*, 208.  
 Washington, Jan. 24, 25; *Astron. jour.*, 7: 62. Feb. 12, 16, 18; *Ibid.*, 78. Mar. 11, 12; *Ibid.*, 86.

**Comet 1887 III** = Comet 1887 d.

- Discovered by Barnard at Nashville, 1887, Feb. 16. *Astron. jour.*, 7: 72. *Also*: *Astron. Nachr.*, 116: 207, 251. *See, also*, *Sid. mess.*, 6: 161.

**Comet 1887 III** (Elements of).

- BARNARD (E. E.) [From obsns. 1887, Feb. 16, 18, 22.] *Sid. mess.*, 6: 161.  
 ——— [From obsns. 1887, Feb. 16, 28, Mar. 8.] *Astron. jour.*, 7: 95.  
 ——— [From obsns. 1887, Feb. 16, 28, Mar. 12.] *Astron. Nachr.*, 117: 59.  
 BOSS (L.) [From obsns. 1887, Feb. 16, 18, 20.] *Astron. Nachr.*, 116: 207.  
*Also*: *Obsrv.*, 10: 144.  
 ——— [From obsns. 1887, Feb. 16, 19, 22.] *Astron. jour.*, 7: 72. *Also*: *Astron. Nachr.*, 116: 223.  
 OPPENHEIM (H.) [From obsns. 1887, Feb. 17, 23, 26.] *Astron. Nachr.*, 116: 255.  
 ——— [From obsns. 1887, Feb. 17, 28, Mar. 11.] *Ibid.*, 271.  
 PALISA (J.) [From obsns. 1887, Feb. 17, 23, 28.] *Ibid.*, 256.  
 WENDELL (O. C.) [From obsns. 1887, Feb. 22, 25, 28.] *Ibid.*, 317.

**Comet 1887 III** (Observations of position of). 1887.

- Albany, Feb. 19, 22, 25; *Astron. jour.*, 7: 84.  
 Algiers, Feb. 24, 26; *Compt. Rend.*, 104: 671. Feb. 24, 26, Mar. 12, 13, 14; *Bull. astron.*, 4: 137. Mar. 21–25; *Ibid.*, 424.  
 Berlin, Feb. 28; *Astron. Nachr.*, 116: 251.  
 Cambridge (Harv. coll. obsrv.), Feb. 17, 19, 25, 28; *Astron. jour.*, 7: 72, 79. *Also*: *Astron. Nachr.*, 116: 267.  
 Copenhagen, Mar. 16; *Astron. Nachr.*, 118: 73.  
 Dresden, Feb. 24; *Ibid.*, 116: 221. Mar. 11; *Ibid.*, 267. Mar. 24; *Ibid.*, 317.  
 Geneva, Feb. 24, 26; *Ibid.*, 116: 251. Mar. 18; *Ibid.*, 315.  
 Göttingen, Feb. 24; *Ibid.*, 116: 221.  
 Greenwich, Feb. 28; *Month. not.*, 47: 275.  
 Hamburg, Feb. 26; *Astron. Nachr.*, 116: 221.  
 Kremsmünster, Feb. 24, 25; *Ibid.*, 117: 149.  
 Nashville, Feb. 16, 18, 22; *Astron. jour.*, 7: 79. *Also*: *Astron. Nachr.*, 116: 251.

**Comet 1887 III** (Observations of position of). 1887—*Continued*.

Nice, Feb. 28, Mar. 1; *Bull. astron.*, 4: 194.

Orwell Park, Feb. 28, Mar. 13, 14, 16, 18, 19, 23, 27, Apr. 10; *Month. not.*, 48: 61.

Palermo, Feb. 27; *Astron. Nachr.*, 116: 267.

Paris, Feb. 17; *Astron. Nachr.*, 116: 207. Feb. 17, 24, 27; *Compt. Rend.*, 104: 559.

Rome, Feb. 24; *Astron. Nachr.*, 116: 251. Feb. 25; *Ibid.*, 117: 270.

Strassburg, Feb. 23; *Ibid.*, 116: 221. Mar. 14; *Ibid.*, 267.

Vienna, Feb. 24; *Ibid.*, 221. Feb. 28; *Ibid.*, 251.

Washington, Feb. 24; *Astron. jour.*, 7: 78.

**Comet 1887 IV** = Comet 1887 *e*.

Discovered by Barnard at Nashville, 1887, May 12. *Astron. jour.*, 7: 96. *Also*: *Astron. Nachr.*, 117: 31. *Also*: *Sid. mess.*, 6: 220.

**Comet 1887 IV** (Elements of).

ABETTI (A.) [From obsns. 1887, May 14, 18, 21.] *Astron. Nachr.*, 117: 102.

BIGELOW (F. H.) [Three normals from obsns. 1887, June 12–22.] *Sid. mess.*, 6: 321.

BOSS (L.) [From obsns. 1887, May 12, 14, 15.] *Astron. jour.*, 7: 96.

CHANDLER (S. C.) jr. [From normals 1887, May 14, 19, 24, 30.] *Astron. jour.*, 7: 104.

—— [From normals 1887, May 14, 30, June 12, July 12.] *Ibid.*, 121.

—— [Elliptic elements from normals 1887, May 14, June 12, July 12.] *Ibid.*, 122.

LAMP (E.) [From obsns. 1887, May 12, 14, 16.] *Astron. Nachr.*, 117: 31.

OPPENHEIM (H.) [From obsns. 1887, May 12, 15, 17.] *Ibid.*, 46.

—— [From normals 1887, May 14, 19, and an observation May 23.] *Ibid.*, 61.

—— [From obsns. 1887, May 14, 19, 23, June 16.] *Ibid.*, 119.

OPPENHEIM (S.) [From obsns. 1887, May 12, 14, 15, 17.] *Astron. Nachr.*, 117: 45.

—— [From obsns. 1887, May 12, 17, 22, 29.] *Ibid.*, 62.

—— [From normals 1887, May 15, 22, 29, June 24.] *Ibid.*, 165.

WENDELL (O. C.) [From obsns. 1887, May 13, 19, 25.] *Ibid.*, 119.

**Comet 1887 IV** (Observations of position of). 1887.

Albany, May 13, 15, 18, 23; *Astron. jour.*, 7: 103.

Algiers, May 16, 18–21, 23, 24; *Astron. Nachr.*, 117: 57. *Also*: *Compt. Rend.*, 104: 1493. May 25, 26, 28, June 9, 10, 15, 16, 20, 22, 23; *Bull. astron.*, 4: 424. Aug. 8, 9; *Bull. astron.*, 4: 465.

Berlin, May 23; *Astron. Nachr.*, 117: 43. June 16, 24, 26; *Ibid.*, 117: 385.

Besancon, June 13, 14, 16, 17, 18, 20–24, July 8, 12, 16, 23; *Compt. Rend.*, 105: 513.



**Comet 1887 IV** (Observations of position of). 1887—*Continued*.

- Bordeaux, May 22, 26, 27, June 8–18, 21, 22; *Astron. Nachr.*, 117: 151. *Also*: *Compt. Rend.*, 104: 1822. June 28–July 2, 6, 7, 11, 12, 13, 19, 22, 23, 24, 27, 29, Aug. 6, 8, 10; *Astron. Nachr.*, 117: 307. *Also*: *Compt. Rend.*, 105: 408.
- Bothkamp, June 15, 16, 24; *Astron. Nachr.*, 117: 133. June 28, July 25; *Ibid.*, 215.
- Cambridge (Chandler), May 30, July 12; *Astron. jour.*, 7: 152.
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